

Preliminary Amendment dated February 11, 2004

Amendments to the Specification:

Please replace the paragraph beginning at page 2, line 2, and ending at page 2, line 3, with the following rewritten paragraph:

This application ~~claims priority to~~ is a continuation of, and claims the benefit of, U.S. Application Serial No. 10/047,763, filed January 15, 2002, which claims the benefit of U.S. Provisional Patent Application Serial No. 60/261,767, filed January 16, 2001.

Please replace the paragraph beginning at page 5, line 23, and ending at page 5, line 25, with the following rewritten paragraph:

Examples of alpha olefin monomers that are useful in this invention are ~~co-polymers co-monomers~~ 1-hexene and 1-dodecene alpha olefins; or co-polymers co-monomers of 1-octene and 1-tetradecene alpha olefins in a 1:1 ratio based upon mole weight of the monomers.

Please replace the paragraph beginning at page 12, line 12, and ending at page 12, line 20, with the following rewritten paragraph:

The term “drag reducing agent” (DRA) as used herein refers to a composition that includes at least the formed polyalphaolefin polymer, preferably made in accordance with the methods described herein. Preferably, because the polyalphaolefin polymer of this invention ~~is~~ can be fully dissolved in the solvent, the “DRA” can also refer to the entire reactant mixture after sufficient

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polymerization has occurred (also referred to as a “polymerization mixture”), including not only the polyalphaolefin, but also the solvent, any viscosity reducing agents and any unreacted monomers. The DRA can also include any remaining transition metal catalyst and co-catalyst. Additionally, the “DRA” can also refer to the polyalphaolefin particles suspended in a liquid to form a drag reducing agent slurry.

Please replace the paragraph beginning after the phrase “Catalyst System.” at page 15, line 18, and ending at page 16, line 4, with the following rewritten paragraph:

An important aspect of the invention is the The “catalyst system,” which, as defined herein, includes a transition metal catalyst and a co-catalyst mixture, preferably containing In a preferred embodiment, the co-catalyst system contains an alkylaluminoxane co-catalyst. The transition metal catalyst and the alkylaluminoxane co-catalyst can be combined with the alpha olefin monomer in a number of ways. The transition metal catalyst and alkylaluminoxane co-catalyst are preferably combined with the monomer at the same time. They are preferably mixed together before the polymerization reaction is initiated. Preferred transition metal catalysts include catalysts containing titanium trichloride, titanium tetrachloride or metallocene or combinations thereof. Preferably, the transition metal catalysts are non-metallocene. Titanium trichloride, which is most preferred, has been used for years in making drag reducing agents, and is preferably used in an amount ranging from at least about 100 to 1500 parts per million (ppm) based on the weight of all the components, i.e., the alpha olefins, solvents, co-catalysts, and catalysts supplied to the reactor. The co-catalyst

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mixture may include alkylaluminoxane alone, or may also include at least one other component, such as diethylaluminum chloride ("DEAC") or dibutylaluminum chloride ("DIBAC"). In a highly preferred aspect of the invention, other co-catalysts that provide excellent results are halohydrocarbons, such as ethylene dichloride used either alone, or in combination with an alkylaluminoxane co-catalyst.

Please replace the paragraph beginning after the phrase "Alkylaluminoxane." at page 16, line 5, and ending at page 16, line 14, with the following rewritten paragraph:

Surprisingly, In one specific embodiment, it has been discovered that a component that provides the polyalphaolefin of this invention with its superior flow improving properties when combined for combining with hydrocarbons (e.g., crude oil) is alkylaluminoxane, preferably either methylaluminoxane (MAO) or isobutylaluminoxane (IBAO). Thus, ~~alkylaluminoxane is a particularly critical ingredient for carrying out the method of the invention.~~ Alkylaluminoxane is a compound having a plurality of aluminum atoms, typically formed by a condensation reaction in which a trialkylaluminum compound (e.g., trimethylaluminum) is combined with a condensing agent, such as water (i.e., resulting in hydrolysis). It is noted, however, that the present invention is not concerned with how to actually make the alkylaluminoxane, which is commercially available from a variety of sources, for example, AKZO NOBEL Chemical Inc., Chicago, Illinois.

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Please replace the paragraph beginning at page 17, line 1, and ending at page 17, line 4, with the following rewritten paragraph:

~~In the method of the invention, the~~ The concentration of the alkylaluminoxane in the co-catalyst mixture is preferably in the range of at least about 100 to about 3500 parts per million (ppm), based on the weight of all the components in the reactant mixture. More preferably, the concentration of the alkylaluminoxane in the catalyst mixture is from at least about 800 to about 2000 ppm.

Please replace the paragraph beginning at page 18, line 28, and ending at page 19, line 6, with the following rewritten paragraph:

Homopolymers, copolymers and terpolymers may be used. Preferred alpha olefins include ethylene, propylene, 1-butene, 4-methyl-1-pentene, 1-hexene, 1-octene, 1-decene, 1-dodecene and 1-tetradecene; conjugated or unconjugated dienes such as butadiene and 1,4-hexadiene; aromatic vinyls such as styrene; and cyclic olefins such as cyclobutene. Most preferably, the alpha olefin monomers are ~~co-polymers co-monomers~~ of 1-hexene and 1-dodecene present in a 1:1 mole ratio; or ~~co-polymers co-monomers~~ of 1-octene and 1-tetradecene present in a 1:1 mole ratio. The alpha olefin monomers can be present in the reactant mixture at a charge rate of 4% to 22% based upon the total weight of the reactant mixture, or more preferably, at a charge rate of 4% to 20%.